LABEL APPLICATOR, METHOD AND LABEL THEREFOR

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of provisional application serial number 60/283,062, filed April 11, 2001, International application serial number No. PCT/US01/16648, filed May 22, 2001 and International application No. PCT/US01/43854, filed November 13, 2001. The entire contents of these applications are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to devices for applying labels to objects, and more particularly to applicators for accurately positioning and affixing annular labels on electro-optical storage devices (optical discs) such as CDs and DVDs. It is further concerned with methods for applying labels to such objects. It additionally relates to the labels themselves and to sheets of the labels, the sheets being adapted to be passed through a printer or copier for a printing operation on the labels.

[0003] A number of devices are known which allow a consumer to apply labels to CDs and the like. Examples thereof are disclosed in U.S. Patents 5,951,819 (Hummell et al.) and 5,958,177 (Claussnitzer). (The entire contents of these patents and all other patents and all other publications mentioned anywhere in this disclosure are hereby incorporated by reference.) These devices have the common problem in that the labels when peeled off of their support sheets tend to curl and thus may not lie flat on the applicator surface. They thereby may crease, fold, have bubbles or otherwise not lie flat on the object surface when adhesively applied thereto.

[0004] Another example of a labeling system is disclosed in U.S. Publication No. US 2001/0025689 A1, published October 4, 2001. This publication discloses an applicator

used to apply a label to a shaped CD-ROM. The applicator includes a central projection, peripheral locator pins, and a well in which to received the CD-ROM. Locator tabs on a label are placed over the locator pins to correlate the location of the label and the CD-ROM.

SUMMARY OF THE INVENTION

[0005] Directed to remedying the problems in the prior art, disclosed herein is an improved label applicator having a curved label support surface to improve label burnishing. The label can have gripping tabs which have side notches that engage on pins extending up from the label support surface to locate and hold the label. A post assembly extends up from the support surface. A CD, DVD or other flat object is positioned over the post assembly and pressed and guided down against the adhesive face of a label on the surface. As the object is pressed down against the label the support surface flattens out and against the bias of return leaf springs, for example. The label thereby is smoothly and gradually applied to the object surface. After the label is adhered to the object the tabs are torn off along perforated lines. The post assembly has a diameter corresponding to that of a center hole of a CD disc. To position a large hole label concentrically about the post assembly a guide pin structure, for example, is lifted to a raised position with the pins extending up from the support surface and about the post assembly to define the centering guide for the large hole.

[0006] Other objects and advantages of the present invention will become more apparent to those persons having ordinary skill in the art to which the present invention pertains from the foregoing description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a top perspective view of a label applicator of the present invention with a small-hole no-touch label of the present invention in place;

[0008] FIG. 2 is a top perspective view similar to FIG. 1 but without the label in position;

[0009] FIG. 3 is a top perspective view of the applicator of FIG. 1 with a disc in a rest position thereon;

[0010] FIG. 4 is a view similar to FIG. 3 showing the disc being pressed down in a label application procedure;

[0011] FIG. 5 is a side elevational view showing the disc in a label-applied condition;

[0012] FIG. 6 is a bottom plan view of the applicator of FIG. 1;

[0013] FIG. 7 is a top perspective view similar to FIG. 1 showing the applicator with the locator pegs thereof in a raised position and a large-hole label in place;

[0014] FIG. 8 is a bottom perspective view of the applicator in a flat condition and without the springs attached;

[0015] FIG. 9 is an enlarged view showing a central portion of FIG. 8;

[0016] FIG. 10 is a perspective view similar to FIG. 8 but from a different angle;

[0017] FIG. 11 is a side elevational view of the applicator of FIG. 8;

[0018] FIG. 12 is a longitudinal cross-sectional view of the applicator of FIG. 8;

[0019] FIG. 13 is a lateral cross-sectional view of the applicator of FIG. 8;

[0020] FIG. 15 is a perspective view of one embodiment showing a post assembly for a label applicator;

[0021] FIG. 14 is a top view of a portion of a label sheet construction (such as that of FIG. 122) showing a printed label being removed therefrom;

[0022] FIG. 16 is a side view of the embodiment of FIG. 15;

[0023] FIG. 17 is a side view of the embodiment of FIG. 15 in a down position;

[0024] FIG. 18 is another side view of the embodiment of FIG. 15 showing an optical disc in position for a label application procedure;

[0025] FIG. 19 is a perspective view of an applicator according to one embodiment of the present invention, with the pegs thereof raised as illustrated a large hole label can be centered thereon,

[0026] FIG. 20 is a cross-sectional view of a post assembly of the applicator of FIG. 19 with a disc in position for application to an adhesive label; the locator thereof being a separate (removable) piece;

[0027] FIG. 21 is another cross-sectional view of a post assembly FIG. 20 with the label applied to the disc;

[0028] FIG. 22 is a cross-sectional view of another embodiment of the post assembly of FIG. 19;

[0029] FIG. 23 is another cross-sectional view of the post assembly of FIG. 22 with the label applied to the disc;

[0030] FIG. 24 is a cross-sectional view of still another embodiment of the post assembly of FIG. 19 (with a bottom knob);

[0031] FIG. 25 is a cross-sectional view of the post assembly of FIG. 24 with the label applied to the disc;

[0032] FIG. 26 is a perspective view of another embodiment of the present invention;

[0033] FIG. 27 is an enlarged cross-sectional view of the center of the embodiment of FIG. 26 with the compressible (foam) ring;

[0034] FIG. 28 is another cross-sectional view similar to FIG. 27 showing a label applied to the disc;

[0035] FIG. 29 is a perspective view of a spindle to a post assembly of a label applicator of the present invention;

[0036] FIG. 30 is an enlarged cross-sectional view of the post assembly of FIG. 29 shown in isolation;

[0037] FIG. 31 is a bottom perspective view of the post assembly of FIG. 29 shown in isolation; the post assembly has a top snap-fit knob;

[0038] FIG. 32 is a top view of an applicator according to the present invention;

[0039] FIG. 33 is a side view of the applicator of FIG. 32 in a molded flat condition;

[0040] FIG. 34 is another side view of the applicator of FIG. 32 with the springs attached;

[0041] FIG. 35 is an exploded perspective view of the applicator of FIG. 32; the coil spring can be fit up into the spindle and the one-piece flat spring can be clipped in place.

[0042] FIG. 36 is a perspective view of a post assembly according to another embodiment of the present invention, the CD supporting fingers bend downwardly relative to the post;

[0043] FIG. 37 is an enlarged perspective view of a flexible locator piece of the spindle of FIG. 36;

[0044] FIG. 38 is a side view of an applicator including the post assembly of FIG. 36;

[0045] FIG. 39 is a side cross-sectional view of a post assembly according to FIGS. 36 and 38;

[0046] FIG. 40 is a view similar to that of FIG. 39 showing the label applied to the disc;

[0047] FIG. 41 is an exploded perspective view of a post assembly according to a further embodiment of the present invention;

[0048] FIG. 42 is an enlarged side elevational view of the post assembly of FIG. 41 with the post snap fit onto the fingers; the CD can initially rest about midway on the fingers which flex inwardly;

[0049] FIG. 43 is a perspective view of an applicator including a prior art post assembly (see 5,951,819 and 5,958,177) for wide hole labels;

[0050] FIG. 44 is a side of the applicator of FIG. 43 in a flattened position;

[0051] FIG. 45 is an enlarged side view of a post assembly according to one embodiment of the present invention;

[0052] FIG. 46 is another side view of the post assembly of FIG. 45;

[0053] FIG. 47 is a further side view of the post assembly of FIG. 45 in a fully compressed position;

[0054] FIG. 48 is a perspective view of an applicator according to a further embodiment of the present invention with a flexible (foam) center and rigid (molded) legs;

[0055] FIG. 49 is a perspective view of a post assembly according to one embodiment of the present invention with the flaps part of the body and foam sandwiched thereunder and defining a label large hole centering means;

[0056] FIG. 50 is a side cross-sectional view of the post assembly of FIG. 49;

[0057] FIG. 51 is a perspective view of a post, peg or prong (or adapter) assembly according to one embodiment of the present invention shown in isolation; the prongs thereof are tapered to provide a friction fit;

[0058] FIG. 52 is perspective view of the post assembly according to FIG. 51 installed in a label applicator;

[0059] FIG. 53 is a first cross-sectional side view of the post assembly of FIG. 52;

[0060] FIG. 54 is a second cross-sectional side view thereof with the CD supported by the post;

[0061] FIG. 55 is a third cross-sectional side view thereof showing a label applied to a disc;

[0062] FIG. 56 is a bottom view of an applicator according to one embodiment of the present invention;

[0063] FIG. 57 is a bottom view of an applicator according to another embodiment of the present invention;

[0064] FIG. 58 is a perspective view of a post assembly according to one embodiment of the present invention for alternatively holding small and large hole labels;

[0065] FIG. 59 is a cross-sectional view of the post assembly of FIG. 58 in a compressed position;

[0066] FIG. 60 is a cross-sectional view of a variation of the post assembly of FIG. 58 in a raised position;

[0067] FIG. 61 is a cross-sectional view of the post assembly of FIG. 60 in a compressed position;

[0068] FIG. 62 is an exploded perspective view of a post assembly according to one embodiment;

[0069] FIG. 63 is a perspective view of a first variation of the post assembly of FIG. 62;

[0070] FIG. 64 is a perspective view of a second variation of the post assembly of FIG. 62;

[0071] FIG. 65 is a perspective view of a third variation of the post assembly of FIG. 62, the bottom CD supporting bead bends in and out;

[0072] FIG. 66 is a perspective view of a fourth variation of the post assembly of FIG. 62;

[0073] FIG. 67 is an enlarged view of a fifth variation of the post assembly which is a variation of the assembly of FIG. 66;

[0074] FIG. 68 is a perspective view of another embodiment of an applicator of the present invention with inserted cylindrical feet;

[0075] FIG. 69 is a top view of the applicator of FIG. 68;

[0076] FIG. 70 is a side view of the applicator of FIG. 68;

[0077] FIG. 71 is a side view of the applicator of FIG. 68 in a compressed position;

[0078] FIG. 72 is an additional perspective view of the applicator of FIG. 68;

[0079] FIG. 73 is close-up perspective view of a component of the applicator of FIG. 68;

[0080] FIG. 74 is a perspective view of another applicator embodiment of the present invention with a label illustrated and having a disappearing locator similar to FIG. 49;

[0081] FIG. 75 is alternative embodiment to that shown in FIG. 74;

[0082] FIG. 76 is a first close-up view of one of the pegs of the applicator of FIG. 74;

[0083] FIG. 77 is a second close-up view;

[0084] FIG. 78 is a perspective view of another applicator embodiment according to the present invention and an alternative of that of FIG. 79, with peripheral side ribs for centering small or large hole labels;

[0085] FIG. 79 is a perspective view of a portion of another applicator embodiment according to the present invention;

[0086] FIG. 80 is a close-up view of a post assembly according to another embodiment of the present invention;

[0087] FIG. 81 is a perspective view of yet another applicator according to the present invention;

[0088] FIG. 82 is a view of a label for use with an applicator according to FIG. 81;

[0089] FIG. 83 is a perspective view of an applicator according to another embodiment of the present invention; it has a disappearing locator for centering a large hole label,

[0090] FIG. 84 is a view of an alternate flap assembly to that of FIG. 83; more particularly it shows a "crushable" locator for holding the disc away from the label before application;

[0091] FIG. 85 is a perspective view of another applicator of the present invention;

[0092] FIG. 86 is a side of the applicator of FIG. 85 showing a disc being applied;

[0093] FIG. 87 is a side view of the applicator of FIG. 85 in a disc compressed position;

[0094] FIG. 88 is a top view of an applicator according to the present invention; the body or plate of the applicator can be made of an engineered plastic eliminating the need for bottom leaf springs to maintain a curved biased configuration thereof;

[0095] FIG. 89 is a cross-sectional side view of an applicator with a small hole label applied;

[0096] FIG. 90 is a top view of the applicator of FIG. 88 with a large hole label applied;

[0097] FIG. 91 is a side view of the applicator of FIG. 90;

[0098] FIG. 92 is a side cross-sectional side view of the applicator of FIG. 90;

[0099] FIG. 93 is a top view of the applicator of FIG. 88 with a small hole label thereon;

[00100] FIG. 94 is a side view of the applicator of FIG. 93;

[00101] FIG. 95 is a perspective view of another applicator of the present invention;

[00102] FIG. 96 is a top view of the applicator of FIG. 95;

[00103] FIG. 97 is a side view of the applicator of FIG. 95;

[00104] FIG. 98 is a bottom view of the applicator of FIG. 95;

[00105] FIG. 99 is an end elevational view of the applicator of FIG. 95;

[00106] FIG. 100 is a side elevational view of an applicator of FIG. 95 with the post assembly thereof in a raised position;

[00107] FIG. 101 is an end elevational view of the applicator of FIG. 100;

[00108] FIG. 102 is a end view of the plate of the applicator of FIG 95 in isolation;

[00109] FIG. 103 is a top perspective view of the plate;

[00110] FIG. 104 is an enlarged cross-sectional view of the post of the plate;

[00111] FIG. 105 is a top plan view of the plate;

[00112] FIG. 106 is a side view of the plate;

[00113] FIG. 107 is a bottom plan view of the plate;

[00114] FIG. 108 is a cross-sectional side view similar to that of FIG. 106;

[00115] FIG. 109 is a top view of a post assembly of the application of claim 95 shown in isolation;

[00116] FIG. 110 is a bottom view of the post assembly;

[00117] FIG. 111 is an end view of the post assembly;

[00118] FIG. 112 is a side view of the post assembly;

[00119] FIG. 113 is a top perspective view of the post assembly;

[00120] FIG. 114 is a side view similar to FIG. 108;

[00121] FIG. 115 is a cross-sectional view taken on line 115-115 of FIG. 114;

[00122] FIG. 116 is a cross-sectional view taken on line 116-116 of FIG. 114;

[00123] FIG. 117 is a close-up view of a portion of FIG. 114;

[00124] FIG. 118 is an enlarged view taken on circle 118 of FIG. 116;

[00125] FIG. 119 is a top view of a spring of the applicator of FIG. 95 shown in isolation;

[00126] FIG. 120 is a side view of the spring of FIG. 119;

[00127] FIG. 121 is a perspective view of the spring;

[00128] FIG. 122 is a top plan view of a (paper) label sheet construction for use with the applicators of the present invention; and

[00129] FIG. 123 is a bottom plan view thereof.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

[00130] Referring to FIGS. 1-7, an embodiment of a label applicator of the present invention is illustrated generally at 100. Applicator 100 includes a flexible body member 106 formed of polypropylene, polyethylene or other flexible plastic compounds. The applicator body member 106 has "feet" 110 at both ends thereof and an arched central portion 116 extending between the feet. A post assembly shown generally at 120

extends up from the center of the top of the body member and is preferably integrally formed therewith. The applicator body member 106 slopes in longitudinal directions away from the post assembly 120 and can be shaped similar to a top portion of a bridge. (Less preferably, the body member can be shaped so that its top label support surface has a dome shape). The top sloping surface of the body member 106 forms a support surface for a label 130.

[00131] A soft pad 136 (FIG. 2) is preferably disposed on the surface and defines the contact surface for the label. The pad 136 can be a urethane foam, rubber or other compound. It preferably has a bottom pressure-sensitive adhesive layer to adhere to the support surface of the applicator body 106 (FIG. 1). The label 130 preferably has a circular central portion 140 with a central hole 144 and a pair of diametrically-positioned ears or tabs 150, 154. The tabs 150, 154 are adapted to be grasped and handled by the user so that the user does not touch the (adhesive) circular portion 140 of the label. The tabs 150, 154 can then be torn off along perforated or weakened lines from the circular portion after the circular portion has been adhered with its adhesive layer to the article 160 (FIG. 5). The article 160 will preferably be a disc, such as a CD or a DVD. The label 130 is pre-cut on a sheet having a backing layer, an adhesive layer and a top layer. The sheet is adapted to be passed through a printer or copier (not shown) and the desired indicia printed on the label 130 in the user's personal desktop printer, for example. The label 130 then is grasped by the two tabs 150, 154 with liner portions (patches) remaining adhered to the back of the tabs so that the user does not touch the adhesive layer on the back of the circular portion 140, and the label 130 is then peeled off of the sheet. The label 130 is placed with the adhesive side of the label facing upward over the post assembly 120, as depicted in FIG. 1.

[00132] The label 130 is centered and held in position ready for an application process by a series of pins or pegs 170, 172. These are shown in FIGS. 1 and 2, for example, with a pair of pins provided for each tab 150, 154, and each tab including a pair of side notches 180, 184 in which the pins are disposed. Alternatively, and less preferably the tabs can have central through-holes through which respective central pins are inserted to hold the label in place during the application procedures.

[00133] The label 130 depicted in FIG. 1 is a full-face or small-hole label which is adapted to cover the entire face of the CD 160 except for the small hole. In contrast, a large or standard opening label 190, which will not cover the transparent, uncoated central portion of the CD 160, is shown and described later. An alternative embodiment of label 190 includes (notched) tabs.

[00134] The flexible plastic member 106 has an arch shape as can be seen in FIGS. 1 and 2, for example; and a pair of elongate leaf springs 204, 208 are attached to the bottom surface of the body member 106 using a pair of clips 212, 216, 220, 224 at both ends and a central locator pin 230, 234 in the center, as illustrated in FIG. 6. The clips and the pins are integrally formed with the body member 106 and extend downwardly from the lower surface thereof. Further, ribs 240, 250 are provided to reduce friction between the leaf springs 204, 208 and the bottom surface of the body member 106. The leaf springs 204, 208 are formed preferably from stainless steel or other type of spring steel. Instead of providing two leaf springs, a larger leaf spring with a central hole can be used (See FIGS. 35 and 56). Further, instead of using one or more separate springs, the body member itself can provide the spring return action, such as by making the body member out of an engineered plastic.

[00135] The post assembly 120 includes a generally cylindrical member 240 having a flat top edge and a hollow interior. Formed on opposite sides thereof are elongate flexing ribs 264, 268 attached at their tops and bottoms but flexible in the center portions. These ribs 264, 268 have nibs 274, 278 at central locations extending outwardly as shown in FIG. 5, for example. These nibs 274, 278 define a disc support surface when a disc 160 is placed in an initial rest position on the post assembly 120 as shown in FIG. 3. When the user then pushes down on the disc 160, these ribs 264, 268 and especially the nibs 274, 278 thereof are pushed and flexed inwardly generally beyond the circumference of the cylindrical portion thereby allowing the disc to be pressed down as shown in FIG. 4 against the adhesive face of a label 130 on the foam pad or support surface 136. As the disc 160 initially contacts an adjacent portion of the label 130 and is further pressed down manually by the user, the disc 160 is pressed towards the support surface of the applicator 100 and the disc gradually contacts further

outwardly disposed portions of the label 130, providing for a smooth and crease and bubble free adherence of the label to the disc. The fully pressed-down condition of the applicator 100 is shown in FIG. 5. And referring thereto it is seen that the fin and post stopper members 284, 288 will engage the surface on which the applicator 100 rests to define a fully pressed position of the applicator.

[00136] The present applicator 100 can also be uniquely and readily adapted for use with the larger opening labels 190. For those labels 190, a centering means for centering the larger hole 304 concentrically about the narrower post assembly 120 is needed. The present invention provides such a unique structure (a four-prong locator assembly shown generally at 320) which is movable by the user from an inoperative out-of-the-way position wherein the small hole opening labels 130 can be used (as previously described with respect to FIG. 1, for example) to an operative position wherein the structure is in place to define the large hole (304) label locator system. This is shown in FIG. 7.

[00137] The locator assembly 320 includes a plurality of posts 324, as shown in FIG. 7. Although the preferred number of posts 324 is four, three, less preferably two, or more than four can be used, or other structures aside from posts, such as arcuate members, can be used. These posts 324 are interconnected together with a bottom plate 330 as shown in FIGS. 8-11, for example. In other words, the four posts 324, connected together by the bottom plate 330, move together up and down through respective openings in the body member 106. A post 340 is connected to the top surface of the plate 330 and extends through a central opening in the body member 106 and up through the center of the post assembly 120. And a knob 350 is attached to the top of the post 340 (FIG. 7). The knob 350 provides a handle by which the user can pull the post 340 up and thereby the four locator posts 324 as shown in FIG. 7. The four raised locator posts 324 allow the applicator 100 to center and accommodate a larger opening label 190 as shown in FIG. 7. Alternatively, this label can also be provided with the no-touch tabs as described for the small hole label. The label, if it has tabs, can similarly be held in place by the four pins 170, 172, engaged in the tab side notches.

[00138] The label applicator 100 as preferably assembled by the manufacturer will now be described. The following components are delivered to or made by the manufacturer: the applicator body member 106 (see FIG. 12), the four prong locator assembly 320 (FIGS. 5 and 8), the knob 350 (FIG. 7), the two leaf springs 204, 208 (FIG. 6), and the foam pad 136 (FIG. 2). The springs 204, 208 are delivered pre-cut and shaped to a curve. And the foam pad 136 is preferably delivered in sheets with pads pre-cut and the logo printed on them and an adhesive layer having a protective silicone liner. The springs 204, 208 are slid under their respective clips 212, 220 at one end thereof until they can be pushed no further. The applicator body member 106 is then bent, and the springs 204, 208 are slid back under the clips 216, 224 at the other end of the body member. The springs 204, 208 are pushed in until the locator pins 230, 234 engage in the respective holes in the springs. The four-prong locator assembly 320 is then pushed up through the holes in the applicator body member 106. The knob 350 is snapped on the top of the post 340 of the prong locator assembly 320. The liner is peeled from the foam pad 136, and the foam pad is positioned in place, adhered on top of the applicator body member 106. An embossed outline on the applicator body member 106 acts as a guide for correctly positioning the foam pad 136.

[00139] The consumer removes the assembled applicator 100 as provided by the manufacturer from its box or other packaging (not shown). The small hole and/or large or regular size hole labels 130, 190 preferably with the no-touch tabs can be provided in sheets (see FIGS. 122-124) in the packaging and/or in separate packages. The user will design, using software on his computer, the desired indicia to be printed on the labels. The label sheets are then passed through the user's (desktop) printer or copier and the desired indicia printed on the labels. The printed labels will then be peeled off of the sheet by the user using the no-touch tabs. The labels 130, 190, will have a natural curl to them when peeled off of their sheets, and the present invention takes advantage of that curl by providing the curved support surface on the applicator 100 for the labels. The present invention also provides the advantage in that the pins 170, 172 grip the notches 180, 184 in the no-touch tabs and hold the label snugly against the support surface of the applicator. The label 130 is placed adhesive or sticky side up on

the curved foam pad 136 of the applicator 100 using the locator pins 170, 172 to locate and hold it in position, with the post assembly 120 passing through the label hole. This step is shown in FIG. 1 for the full face or small-hole label 130.

[00140] The next step is to place the flat articles 160 such as a disc, and more particularly a CD or a DVD, data side up, on the post assembly 120 or locator as shown in FIG. 3. The user then manually presses the disc 160 down, biasing the nibs 274, 278 inward until the disc touches the label 130, as shown in FIG. 4. He continues to press the disc 160 down until the applicator 100 is substantially flat, as shown in FIG. 5, with the stop fins and posts contacting the support surface on which the applicator rests. The curved support surface for the label 130 smoothes the label onto the disc 160 from the center outwards as the disc is pressed down onto the label. The labeled disc is then lifted off of the post assembly 120. The tabs of the label 130 are then torn off from the affixed label by the user. The applicator 100 returns to its normal arched or curved configuration due to the return action of its leaf springs 204, 208, for example.

[00141] For standard CD labels 190, that is, ones with standard size holes that are larger than the holes of the full face label, a first application step is for the user to grasp the knob 350 on the top of the post 340 and pull up on the knob, thereby pulling the four-prong locator assembly 320 up so that the four locator prongs or posts 324 extend up above the surface of the foam pad 136, approximately one-half inch. After designing the indicia to be printed on the label 190 and printing that indicia on the sheeted label, the label is peeled off from the sheet liner. The printed label 190 is placed sticky or adhesive side up on the applicator 100 over the post assembly 120 and using the four raised locator posts 324 as a centering guide and onto the foam pad (FIG. 7). The label 190 can also be positioned with the locator pins 170, 172, if tabs and notches are provided in the label. As mentioned previously, the curved label support surface allows the labels to be burnished (or applied) more smoothly by taking advantage of the natural curl of the printed labels when removed from their support sheets. The disc 160 is positioned in the rest position on the nibs 274, 278 and then pressed down similar to the full face labels; the disc is pressed down until the applicator 100 is flat or substantially flat. The curved applicator 100 will smooth the adhesive label onto the disc from the

center outwards as the disc is pressed down to the applicator pressed-down position. The labeled disc is then removed from the applicator 100.

[00142] The body member 106 when in a rest position preferably has a height of 2.875 inches and has a footprint with a width of 5.25 inches and a length of 8.125 inches, and when in a compressed label application position has a height of 1.5 inches and a footprint of the same width as when in the rest position but a longer length of 9.125 inches. While small hole labels can have a central hole diameter of .604 inch, the large hole labels can have a central hole diameter of 1.625 inches. Dimensions other than those set forth above as would be apparent to those skilled in the art are within the scope of this invention, as are different configurations and materials.

[00143] FIG. 15 is a perspective view of another embodiment of the present invention showing a post assembly 404 having a spindle 406 coupled thereto. The knob 407 is movable up and down within the post assembly by physically pushing and pulling the spindle. The spindle 406 includes at least one ridge 408. The ridge 408 acts as a stop for an article 410 placed on the post assembly. When the article 410 is placed on the post assembly 404, the article meets the at least one ridge 408 for accurately positioning on the post assembly. FIGS. 16-18 show side views of the spindle 406 of FIG. 15, in varying positions relative to the post assembly. FIG. 16 shows the spindle 406 in an upright position, fully pulled up from the post assembly. FIG. 17 shows the spindle 406 partially pulled up from the post assembly, or alternatively partially pushed down on the post assembly. FIG. 18 shows the spindle 406 pushed all the way down on the post assembly, or in the alternative, in a position in which it has not been pulled up from the post assembly.

[00144] FIG. 19 is a perspective view of an applicator 400 having a support surface 412 and central area 416 of the support surface. The applicator 400 includes the post assembly 404. The post assembly 404 may be positioned beneath the support surface 412 and may include a base portion 418 and a plurality of pegs 420 that extend from beneath the support surface 412 through to the upward-facing side of the support surface 412. The plurality of pegs 420 provide positioning support for an article 410 placed on the post assembly 404. The base portion 418 also includes a vertical post

422. FIGS. 20 and 21 are cross-sectional views of the post assembly 404 of FIG. 19 in different stages of compression by the article 410. In FIG. 20, the plurality of ends are positioned above the support surface 412, and the article 410 is in the process of being placed on the post assembly 404. In FIG. 21, the article 410 has been pushed down on the post assembly 404, such that the plurality of pegs 420 are beneath the top surface of the support surface 412. In both FIG. 20 and FIG. 21, the vertical post 418 of the post assembly 404 is coupled to the post assembly at an upper end of the vertical post such that the base portion 418 and plurality of ends do not separate from the post assembly when the article 410 compresses the plurality of pegs 420 below the top of the support surface 412 (inwardly-disposed catches).

[00145] FIGS. 22 and 23 are cross-sectional views of another embodiment of the present invention showing the post assembly 404 of FIG. 19 in different stages of compression by the article 410. In this embodiment, the plurality of pegs 420 have curved edges 421 that catch the post assembly as an article 410 pushes the plurality of pegs 420 down when the article 410 is being pushed down on the post assembly. This prevents the plurality of ends and the base portion 418 from separating from the post assembly when the article 410 compresses the plurality of ends below the top of the support surface 412.

[00146] FIG. 24 and FIG. 25 are cross-sectional views of still another embodiment of the present invention showing the post assembly 404 of FIG. 19 in different stages of compression by the article 410. This embodiment includes a plurality of pegs 420 and a base portion 418 biased by a spring 424. The spring 424 is coiled around a post 422 which is coupled on one end to the post assembly 404 and on another end to a bottom portion 426. When an article 410 is pushed down on the post assembly 404, the spring 424 compresses against the bottom portion 426. This prevents the plurality of pegs 420 and the base portion 418 from separating from the post assembly 404 when the article 410 compresses the plurality of pegs 420 below the top of the support surface 412. When an article 410 is not pressed down on the post assembly 404, the spring 424 supports the base portion 418 and plurality of pegs 420 and biases them in an upward

position such that the plurality of pegs 420 extend through to the top of the support surface 412.

[00147] FIG. 26 is a perspective view of another embodiment of the present invention in which the applicator includes a recess 430 and a compressible material 428, such as a foam padding, employed in the recess to support an article 410 placed on the post assembly 404. FIG. 27, and FIG. 28 are cross-sectional views of the embodiment of FIG. 26 and show the foam padding in the recess 430 encircling the post assembly 404. FIG. 27 shows the foam padding in an uncompressed, or normal state, prior to an article 410 being pushed down on the post assembly 404. FIG. 28 shows the foam padding in a compressed state with an article 410 being pushed down on the post assembly 404 and compressing the foam padding. In the embodiments of FIG. 26, 27 and 28, the foam padding allows a user to center the article 410 on the applicator for ease in applying a label to the article 410.

[00148] FIG. 29 shows a portion of post assembly 404 in which a spindle 406 is coupled to the post assembly 404. The post assembly 404 also includes a plurality of leaves 434 extending out from the post assembly 404 for guiding the placement of an article 410 on the post assembly 404. The plurality of leaves 434 are coupled at one end to the post assembly 404 and include foam between the plurality of leaves 434 and the post assembly so that the plurality of leaves 434 compress inward toward the post assembly. FIG. 30 is a cross-sectional view of the post assembly 404 showing the spindle 406 and post assembly 404 to be moveable. A user grasps the spindle (or knob) 406 to move the post assembly 404 up and down. FIG. 31 is a perspective view of the post assembly 404 showing the spindle 406 being coupled to the post assembly, the post assembly 404 having a top portion 436 which snaps into a housing 438 of the spindle 406 to secure the spindle 406 to the post assembly.

[00149] FIG. 32 is a top view of an applicator 400 of the present invention. The applicator 400 includes a support surface 412, a central area 416, and a post assembly 404. The applicator of FIG. 32 is shown in a substantially compressed configuration from an overhead view. FIG. 33 is a side view of the applicator 400 of the present invention in a compressed state, such as would occur when an article 410 is pressed

down on the post assembly by a user. FIG. 34 is also a side view of the applicator 400 of the present invention, showing the applicator in an uncompressed state. FIG. 35 is a perspective view of an applicator 400 of the present invention, showing a post assembly 404 having a spindle 406 biased by a coiled spring 440 and held in place by a flat spring 442. The flat spring 442, coiled spring 440 and spindle 406 are mounted on the bottom of the applicator 400, such that the post assembly 404 remains in an upright, static position as an article 410 is placed on the post assembly 404 and pushed down. FIG. 33 and FIG. 34 show the spindle 406 applied from the bottom of the applicator 400 as shown in FIG. 35.

[00150] FIG. 36 is a perspective view of a post assembly 404 having a spindle 406, a base portion 418, and a plurality of flexible locator pieces 444 coupled to the base portion 418. The plurality of flexible locator pieces 444 each have an end positioned in a groove 448 on the spindle 406, and an edge 450 on the end extending slightly away from the spindle 406 to receive an article 410 being positioned on the post assembly 404. As an article 410 is placed on the post assembly 404 and pushed down, the plurality of flexible locator pieces 444 move down and away from the spindle 406. FIG. 37 is a close-up perspective view of one of the flexible locator pieces 444 with an edge 450 on an end extending slightly away from the spindle 406. FIG. 38 is a side view of an applicator 400 of the present invention including a spindle 406 having the plurality of flexible locator pieces 444 positioned thereon. FIG. 39 and FIG. 40 show an article 410 being applied to the post assembly 404. In FIG. 39, the flexible locator pieces 444 are in their normal position prior to the article 410 being applied. In FIG. 40, the flexible locator pieces 444 are pushed down and away from the post assembly 404 as the article 410 is pushed down on the post assembly 404.

[00151] FIG. 41 is a perspective view of a post assembly 404 for use in an applicator 400 of the present invention. The post assembly 404 includes a spindle 406, a base portion 460, and a plurality of extensions 452 on the base portions 460 perpendicularly positioned relative to the flat surface of the base portion 460. The spindle 406 includes a series of grooves 454 which accept the plurality of extensions 452 when the spindle 406 is pushed down onto the base portion 418, causing the spindle 406 to snap into and be

secured by the base portion 460. FIG. 42 shows the spindle 406 placed on and snapped into the base portion 460. The plurality of extensions 452 also guide the placement of the article 410 on the post assembly 404. As an article 410 is placed on the post assembly 404 and over the plurality of extensions 452, the plurality of extensions 452 compress inwardly in the grooves 454 of the spindle 406 to allow the article 410 to be fully pressed down on to a label 432 placed on the support surface 412.

[00152] FIG. 43 is a perspective view of one embodiment of the applicator 400 of the present invention. The support surface 412 includes a beaded edge 456 running around the entire edge of the support surface 412. The support surface 412 itself is made of a material having a light texture on the surface. A foam pad forming the central area 416 is placed on the support surface 412. The applicator body 402 includes a pair of ends 458 that may include gradual depressions that form feet for supporting the applicator 400. FIG. 44 is a side of the applicator 400 according to the embodiment of FIG. 43, in which the applicator 400 has been pressed down to a substantially horizontal position by the application of an article 410 to the post assembly 404. The post assembly of FIG. 43, which can be used with all applicator embodiments of the present invention, is disclosed in U.S. Patent No. 5, 951,819 (Hummell et al.).

[00153] The post assembly 404 of FIGS. 43 and 44 includes a spindle 406 and a base portion 460. The base portion 460 is retractable upon the application of an article 410 to the post assembly 404, as shown in FIG. 44. An article 410 placed on the post assembly 404 first rests on the base portion 460 and then, as more force is applied, the article 410 causes the base portion 460 to retract to a position underneath the top of the support surface 412 as shown in FIG. 44. The retractable feature of the post assembly 404 of this embodiment is further shown in FIGS. 45, 46, and 47. In FIG. 45, the post assembly 404 includes a spindle 406, a tiered portion 462, and a base portion 460. The base portion 460 is positioned beneath the support surface 412. As an article 410 is placed on the spindle 406 of the post assembly 404, it rests initially on the top of the tiered portion 462, as shown in FIG. 46. When a downward force is applied to the article 410, the tiered portion 462 retracts into the base portion 460, such that when the article

410 is pushed fully to the support surface 412, the tiered portion 462 retracts fully into the base portion 460 as shown in FIG. 47.

[00154] FIG. 48 shows another embodiment of the applicator 400 of the present invention in which the support surface 412 is an elongate, flexible body having a pair of rigid, molded edges 458. The support surface 412 may also include a series of holes. A pair of springs 464 may also be positioned under the support surface 412 for biasing the support surface 412 in a slightly curved position, so that the rigid, molded edges 458 form legs for the support surface 412 when in the slightly curved position.

[00155] FIG. 49 is a perspective view of a post assembly 404 for use with an applicator 400 of the present invention. The post assembly 404 includes a spindle 406 and a plurality of leaves 434 extending out from the post assembly 404 for guiding the placement of an article 410, as shown in FIG. 29. FIG. 49 also shows a pair of surface flaps 466 coupled to the support surface 412 and having an opening 468 at substantially parallel positions relative to the support surface 412. The surface flaps 466 each include a foam portion 470 at the opening 468 so that the surface flaps 466 are compressible against the support surface 412 when an article 410 is positioned on the post assembly 404 and pushed down against the support surface 412. FIG. 50 is a side view of the post assembly 404 and applicator 400 of FIG. 49.

[00156] FIG. 51 is a perspective view of a post assembly 404 according to one embodiment of the present invention. The post assembly 404 of FIG. 51 includes a base portion 418 and a plurality of tapered pegs 472. The base portion 418 is positioned below the support surface 412 such that the tapered pegs 472 extend through holes to the top surface of the support surface 412, as shown in FIG. 52. As an article 410 is placed on the post assembly 404, as in FIG. 53, and pushed down on the tapered pegs 472 towards label 473, as in FIG. 54, the tapered aspect of the pegs 472 deters the pegs from completely passing through the holes in the support surface 412. In yet another embodiment, the post assembly 404 may be removable and securable to the applicator. FIG. 55 is a side view of the post assembly 404 freed from the applicator as an article 410 is pushed all the way down on the post assembly 404, with the tapered

pegs 472 allowed to pass through the support surface 412 such that the post assembly 404 is released from the applicator 400.

[00157] FIG. 56 is a bottom view of an applicator 400 according to one embodiment of the present invention. The applicator 400 of FIG. 56 includes a pair of springs 464 positioned under the support surface 412 for biasing the support surface 412 in a slightly curved position. The pair of springs 464 are positioned to be spaced apart relative to each other at their respective middle sections, and close together relative to each other at their respective end sections. FIG. 57 is a bottom view of an applicator 400 according to another embodiment of the present invention. The applicator 400 of FIG. 57 includes a pair of springs 464 positioned under the support surface 412 for biasing the support surface 412 in a slightly curved position. The pair of springs 464 are positioned substantially parallel relative to each other.

[00158] FIG. 58 is a perspective view of a post assembly 404 according to one embodiment of the present invention. The post assembly 404 includes a spindle 406, a tiered portion 462 providing a first centering area 474, and a base portion 460 providing a second centering area 476. Labels 432 having a narrow central opening are centered using first centering area 474. Labels 432 having a wide central opening are centered using the second centering area 476. FIG. 59 is a cross-sectional view of the embodiment of FIG. 58, wherein the spindle 406 and tiered portion 462 are biased against the base portion 460 by a first spring 478. A second spring 480 biases the base portion 460 against the post assembly 404. FIG. 60 is a cross-sectional view of another embodiment, wherein a single spring 482 biases the spindle 406, tiered portion 462, and base portion 460 against the post assembly 404. As an article 410 is pushed down on the tiered portion 462 of the post assembly 404, the tiered portion 462 compresses inside the base portion 460, which compresses down beneath the top of the support surface 412. FIG. 61 is a further cross-sectional of the embodiment of FIG. 60, in which the base portion 460 is compressed down beneath the support surface 412 as an article 410 is pushed down on the post assembly 404.

[00159] FIG. 62 is a perspective view of a post assembly 404 according to one embodiment, where the post assembly 404 includes a spindle 406, a tiered portion 462,

and a base portion 460. FIGS. 63 and 65 are views of a spindle 406 having a leaf 444 extending out from the post assembly 404 for guiding the placement of an article 410 on the post assembly 404, similar to that shown in FIG. 29.

[00160] FIG. 64 is a perspective view of a post assembly 404 according to one embodiment, the post assembly 404 including a spindle 406, a base portion 460, and a plurality of ridges 408 coupled to the spindle 406 and positioned in grooves 448 on the spindle 406. The plurality of ridges 408 each have an edge extending slightly away from the spindle 406 to receive the article 410 being positioned on the spindle 406. When the edge receives the article 410, the plurality of ridges 408 are compressed toward the spindle 406 within the grooves 448 as the article 410 is pushed down on the post assembly 404. FIG. 66 is an enlarged view of a spindle 406 having a ridge 408 as shown in FIG. 64.

[00161] FIG. 67 is an enlarged view of one embodiment of the present invention, in which a spindle 406 includes a plurality of fins 484 coupled to the spindle 406 and positioned in grooves 448 on the spindle 406. The plurality of fins 484 extend from the spindle 406 to receive the article 410 positioned on the spindle 406. When the plurality of fins 484 receive the article 410, the plurality of fins 484 are compressed within the grooves 448 of the spindle 406 as the article 410 is pushed down on the post assembly 404. FIG. 68 is a perspective view of another embodiment of the applicator 400 of the present invention in which the support surface 412 is an elongate, flexible body having a pair of rigid, molded edges 458. A pair of springs 464 may also be positioned under the support surface 412 for biasing the support surface 412 in a slightly curved position, so that the rigid, molded edges 458 form legs for the support surface 412 when in the slightly curved position. Each of the edges 458 may also include a first side 486, a second side 488, and a pocket 490 passing through the applicator body 400 from the first side 486 to the second side 488. The pocket 490 is capable of having a support bar 492 inserted from one of the first 486 or second side 488 to the other side for supporting the legs of the applicator body 400.

[00162] FIG. 69 is a top view of the embodiment of FIG. 68. FIG. 70 is a side view of the embodiment of FIG. 68, showing the applicator 400 biased in a curved position prior

to having an article 410 pushed down on the post assembly 404. FIG. 71 is an additional side view of the embodiment of FIG. 68, showing the applicator 400 in substantially flat position after having an article 410 pushed down on the post assembly 404. FIG. 72 is an additional perspective view of the embodiment of FIG. 68, showing support bars 492 inserted into the pockets 490 on the edges of the applicator 400. FIG. 73 is close-up perspective view of a component of the applicator of FIG. 68, showing a leg of the applicator having a plurality of suction cups attached thereto,

[00163] FIG. 74 is a perspective view of an applicator 400 showing a label 432 prior to be placed on the post assembly 404. The applicator 400 includes a support surface 412, a central area 416, and a pair of posts 494. The central area 416 includes ends 496 having holes 498 in the ends 496, the holes 498 placed over the posts 494. The label 432 also includes ends having holes in the ends, for placement over the posts 494 for alignment on the central area 416. The ends of the label 432 are also used for handling the label 432 for placement over the central area 416. FIG. 74 also shows the post assembly 404 having a plurality of leaves 434 extending out from the post assembly 404 for guiding the placement of an article 410 on the post assembly 404. FIG. 74 also shows a pair of surface flaps 466 coupled to the support surface 412 and having an opening 468 at substantially parallel positions relative to the support surface 412. The surface flaps 466 each include a foam portion 470 at the opening 468 so that the surface flaps 466 are compressible against the support surface 412 when an article 410 is positioned on the post assembly 404 and pushed down against the support surface 412. FIG. 75 is alternate embodiment to that shown in FIG. 74, without the plurality of leaves 434 on the post assembly 404 and the surface flaps 466 on the support surface 412. The embodiments of FIG. 74 and 75 may be used with any other embodiments described herein.

[00164] FIGS. 76 and 77 are close-up views of the posts 494 positioned on the support surface 412 as shown in FIG. 74. FIG. 76 and FIG. 77 show that the support surface 412 of an applicator 400 of the present invention can accommodate labels 432 of different sizes. The slots in the central area 416 the label 432 are elongated to align the posts 494 at different positions. FIG. 78 and FIG. 79 show different embodiments of the

applicator 400, in which the posts 494 of the support surface 412 are aligned to hold a label 432 in a lateral manner as opposed to the longitudinal manner as shown in FIG. 74. The support surface 412 in this embodiment may include posts 494, as shown in FIG. 78, or by a pair of flex ribs 500 positioned at outer, longitudinal edges of the central area 416 as shown in FIG. 79. The flex ribs 500 allow the label 432 to compress longitudinally when an article 410 is pushed down on the post assembly 404. FIG. 80 shows a post assembly 404 having a spindle 406 with a plurality of ridges 408 positioned in grooves 448 on the spindle 406. The plurality of ridges 408 each have an edge extending slightly away from the spindle 406 to receive the article 410 being positioned on the spindle 406. This embodiment can be used with any of the embodiments described herein.

[00165] FIG. 81 is a perspective view of yet another embodiment for holding in place a label 432 positioned on the support surface 412. FIG. 81 shows a pair of flex ribs 500 coupled to the support surface 412 at points along elongated sides. The flex ribs 500 each include an alignment wall 502 having two sides angled relative to each other along a crease line 504. FIG. 82 shows a particular label 506 for use with the embodiment of FIG. 81. The label 506 of FIG. 82 includes a first pair of ends 508 for handling the label 506, and a second pair of pointed ends 510 for positioning the label 506 on the applicator 400 as shown in FIG. 81. The label 506 also includes a central area 512, which may be substantially round, circular, oval, elliptical, square, rectangular, or any other shape commonly used for labels, a pair of tabs 508 having a hole in each tab and extending out from the central area 512 such that they are oppositely oriented relative to each other, and a pair of alignment ends 510 extending out from the central area 512 and oppositely oriented relative to each other along a perpendicular axis relative to the pair of tabs 508.

[00166] FIG. 83 is a perspective view of an applicator 400 having a pair of surface flaps 466 coupled to the support surface 412 and having openings 468 at substantially parallel positions relative to the support surface 412, the surface flaps 466 each a plurality of fins 514 and a foam portion 516 between each fin in the plurality of fins 514. The surface flaps 466 are compressible against the support surface 412 when the

article 410 is positioned on the spindle 406 and pushed down against the support surface 412. FIG. 84 shows an alternate embodiment of the surface flap 466 aspect of the present invention.

[00167] FIG. 85 is a perspective view of another embodiment of the applicator 400 of the present invention. The applicator 400 in FIG. 85 includes a foam body 402 having a gap 518, such that the foam body 402 compresses when the article 410 is pushed down against the support surface 412. FIG. 86 is a side view of the applicator of FIG. 85, showing the foam body 402, the gap 518, and a post assembly 404 having a portion visible through the gap 518. The applicator of FIG. 86 is in an uncompressed state, showing an article 410 prior to being placed on the post assembly 404. The applicator of FIG. 87 is in a substantially compressed state, showing the article 410 placed on the post assembly 404 and pushed down onto the support surface 412.

[00168] FIG. 88 is a top view of an applicator 400 according to one embodiment of the present invention, showing an applicator body 402, a support surface 412, a central area 416, a post assembly 404, and a pair of compressible surface flaps 466 positioned in the central area 416. FIG. 88 shows the applicator 400 without a label 432 placed on the support surface 412. FIG. 89 is a cross-sectional side view of an applicator 400 according to another embodiment of the present invention. The applicator of FIG. 89 includes a post assembly 404 having a ring 520 coupled to a foam sleeve 522 and a cap 524 capable of being screwed into and out of the foam sleeve 522. The ring 520 supports the article 410 placed on the post assembly 404 and is capable of moving up and down with the foam sleeve 522 as the post assembly 404 is moved up and down. FIG. 89 includes a label 432 having a narrow central opening placed on the support surface 412, covering but not compressing the support flaps 466. Both FIG. 88 and FIG. 89 show the applicator prior to having an article 410 being placed on the support surface 412.

[00169] FIG. 90 is a top view of an applicator 400 according to another embodiment of the present invention, showing an applicator body 402, a support surface 412, a central area 416, a post assembly 404, a pair of compressible surface flaps 466 positioned in the central area 416, and a label 432 placed on the support surface 412 and having a

wide central opening such that both surface flaps 466 are showing. FIG. 91 is a side view of the applicator of FIG. 90, showing the label having the wide central opening placed thereon.

[00170] FIG. 92 is a cross-sectional side view of an applicator 400 according to the present invention, showing the surface flaps 466 in their raised position relative to the support surface 412, and with a label 432 having a wide central opening placed on the support surface 412. FIG. 92 shows the applicator 400 prior to an article 410 being pushed down to substantially compress the surface flaps 466 against the support surface 412. The applicator of FIG. 92 includes a post assembly 404 having a ring 520 coupled to a foam sleeve 522 and a cap 524 capable of being screwed into and out of the foam sleeve 522. The ring 520 supports the article 410 placed on the post assembly 404 and is capable of moving up and down with the foam sleeve 522 as the post assembly 404 is moved up and down.

[00171] FIG. 93 is an overhead, compressed view of an applicator 400 according to another embodiment of the present invention, showing an applicator body 402, a support surface 412, a central area 416, a post assembly 404, a pair of compressible surface flaps 466 positioned in the central area 416, and a label 432 placed on the support surface 412 and having a narrow central opening such that both surface flaps 466 are not showing when the label 432 is placed on the support surface 412. FIG. 94 is a side view of the applicator of FIG. 93, showing a label 432 having a narrow central opening and placed on the support surface 412. The label 432 placed on the applicator of FIG. 94 covers the surface flaps 466 located on the support surface 412. FIG. 94 shows the applicator 400 prior to having an article 410 placed thereon and pushed to compress the applicator.

[00172] FIG. 95 is a perspective view of another embodiment of an applicator 400 of the present invention, the applicator having an applicator body 402, a support surface 412, a post assembly 404, a foam pad located in a central area 416 of the support surface 412, and a pair of centering pegs 526, part of the post assembly 404, that are positioned in recesses 528 in the support surface 412 for centering a label 432 placed on the support surface 412. The two recesses 528 may be parenthetically shaped and

oppositely oriented relative to each other. The spindle 406 also may include ridges 408 that extend slightly from the spindle 406 to receive an article 410 placed on the spindle 406. The ridges 408 are positioned in grooves on the spindle 406, and recess into the grooves when the article 410 is pushed down on the spindle 406. The applicator 400 of FIG. 95 is capable of accepting labels 432 having a narrow central area 416, and labels 432 having a wide central area 416. FIG. 96 is an overhead, compressed view of the applicator of FIG. 95, showing the recesses 528 and centering pegs 526 in the support surface 412.

[00173] FIG. 97 is a side view of the applicator of FIGS. 95 and 96. The post assembly 404 includes a base portion 418 positioned underneath the support surface 412. The centering pegs 526 are coupled to the base portion 418 and extend through the applicator body 402 in the recesses 528 when the post assembly 404 is in an extended upward position. The post assembly 404, which includes a spindle 406 also coupled to the base portion 418, can be pushed or pulled by pushing or pulling the spindle 406. This causes the base portion 418 to move up and down, which causes the centering pegs 526 to either extend up from the recesses 528, or rest inside the recesses 528 without extending above the support surface 412. The applicator 400 of FIG. 97 is biased to a curved position by at least one spring 464, not shown in FIG. 97, positioned underneath the support surface 412. FIG. 100 is an additional side view of the applicator 400, showing the post assembly 404 in a raised position by pulling the spindle 406 upward.

[00174] FIG. 98 shows a bottom, compressed view of the applicator 400 of FIGS. 95-97. FIG. 98 shows a pair of springs 464 that bias the applicator 400 in a curved position when in an uncompressed state. The pair of springs 464 may be held in place by sliding the ends of the pair of springs 464 through slots, or slightly curved extensions 465 of applicator body 402. FIG. 99 is an alternate side view of the applicator of FIG. 95, showing the tab end of the foam pad on the support surface 412 of the applicator. FIG. 101 is a similar side view as that of FIG. 98, showing the post assembly 404 in a raised position by pulling the spindle 406 upward.

[00175] FIG. 102 is an end view of the applicator body 402 with the support surface 412 facing down, showing the body without biasing by springs 464. A post assembly 404 is also shown in FIG. 102. FIG. 103 is a perspective view of the applicator body 402, shown with the support surface 412 facing up, again in an unbiased state. FIG. 104 is a cross-sectional view of the applicator body 402, showing the post assembly 404 in a raised position.

[00176] FIG. 105 is a top view of the applicator body 402 of FIG. 103. FIG. 106 is a side view of the applicator body 402 of FIG. 103. FIG. 107 is a bottom view of the applicator body 402, showing a pair of springs 464 used to bias the applicator body 403 in a curved position. FIG. 108 is a cross-sectional side view similar to that of FIG. 106.

[00177] FIG. 109 is a top view of a post assembly 404 component of the applicator 400 of the present invention. FIG. 109 shows the spindle 406 and a plurality of pegs 420 coupled to the base portion 418. FIG. 110 is a bottom view of the post assembly 404. FIG. 111 is a side view of the post assembly 404, showing the base portion 418, the spindle 406, and the plurality of pegs 420. FIG. 112 is an additional side view. FIG. 113 is a perspective view of the post assembly 404.

[00178] FIG. 114 is an additional side view of the applicator 400 of the present invention. FIG. 115 is yet another side view, showing a pair of springs 464 positioned beneath support surface 412. FIG. 116 is a bottom view of the applicator 400, showing the pair of springs 464 placed beneath the support surface 412. FIG. 117 and FIG. 118 are close-up views of the coupling of the pair of springs 464 to the applicator body 402. FIG. 119 is an overhead view of one of the pair of springs 464 used to bias the applicator body 402 in a curved position. FIG. 120 is a side view of the spring of FIG. 119. FIG. 121 is a perspective view of the spring of FIG. 119.

[00179] Referring in particular to FIGS. 122 and 123, another embodiment of the present invention is illustrated generally at 600. Referring thereto it similarly includes two labels 602 each with diametrically opposed tabs 604; a weakened line 606, such as a perforated line, extends through both the facestock 608 and the liner 610 separating the sheet into two generally equal portions with a label on each portion. A small circular

portion 612 is cut at the center of the label. Each portion similarly includes a strip 614, including a pair of case spine labels 616.

[00180] The tabs can have "ties" away from the label to insure that the tabs remain flat while passing through desktop printers. In other words, the backing (liner sheet) can be perfed along some portions of the cut, while being cut through in other portions. As described and illustrated in detail elsewhere in this disclosure, the tabs are used for handling (guiding and placement) of the label during application thereof. The tab side notches are used to accurately secure the label to the applicator device.

[00181] On the right side of the sheet extending the length is a facestock strip 618 having thereon printed label application instructions 620. Crescent shaped openings 622 are provided. Other indicia can be printed on the facestock of the label as well as on the back of the liner. For example, the printed indicia on the back of the liner can be the logo of the manufacturer or distributor. The printed arrows 624 at the top end of the sheet indicate the feed direction for the sheet into the printer or copier. Alternatively, no printing or other indicia can be provided on the sheet construction. The liner extends a short distance out from the perimeter of the facestock, as discussed in greater detail elsewhere in this disclosure.

[00182] A paper facestock sheet embodiment includes holes rounded and spaced from a strip. If the matrix is too wide for the MYLAR and foil stock embodiments printer error can result. Narrowing the matrix allows the full width of the sheet to be sensed and printed. The paper facestock of the label sheet construction can be thirty to seventy pounds per ream and between two and six mils thick. The polyester film or MYLAR can either just be clear or it can be metallized smooth to form a high gloss smooth metallized film. Alternatively, it can be embossed with a holographic film. This film can be between 1.5 and three mils with a preferred thickness being two mils, not including the inkjet printable top coating. The metallic labels can use a paper/foil laminate, which also can be two to six mils thick.

[00183] The paper label can be used for most types of label printing. It can have a matte finish or a smooth, photo glossy finish. Although the matte labels may or may not

have an inkjet receptive coating, the glossy labels generally must have an inkjet receptive top coating according to a preferred embodiment. The foil/paper laminate labels (metallic) are used when a higher end or unique look to the CDs is desired as can be provided by the metallic facestock. Further, a metallic label using plain clear polyester film with metallic undercoat can be used.

[00184] The holographic laminate labels (clear polyester embossed on the backside with a holographic pattern and metallized) are for users who want a higher end or unique look to their CDs that is provided by the holographic facestock.

[00185] The clear polyester labels are provided for users who want a higher end or unique look to their CDs that is afforded by the clear facestock, which will nearly disappear and will give an effect similar to printing directly on the CD. This is how most professional and mass produced CDs are given their graphic presentation.

[00186] The label sheet constructions, for example, are preferably produced on a "converting press," pursuant to the following steps.

[00187] a. A facestock/adhesive/silicon coated liner laminate is placed in roll form on the unwind of the converting press.

[00188] b. The laminate material or web is fed through a series of rollers in the converting press whereby the material passes by a web guide that aligns the material in the press. It then passes through a printing station that may or may not print text and/or graphics on one side of the web material. The web then may or may not pass through a device such as a "turnbar," that turns the web over. The web then passes through a second print station that may or may not print on the other side of the web.

[00189] c. The web may or may not be inverted by a series of idler rollers. The web next passes though the die station in order to make die cuts in the liner. The die station includes a steel roller (an "anvil roll"), which is smooth, highly concentric, and very flat in the cross machine direction, and a rotary die, which is a steel cylinder with a flat cylindrical surface on either side ("bearers") and a pattern of sharp blades across the middle and around the circumference of the die (corresponding to where the liner of the label sheet has cuts). The die is positioned either directly above or directly below the

anvil roll, and the die comes in contact with the anvil roll at the bearers on either side of the die. The blades are made such that they are a distance away from the anvil roll that corresponds to a percentage of the facestock thickness (typically about 70%). As a result, when the web passes between the anvil roll and the die (the bearers are on either side of the web and do not touch the web), the blades cut through the liner and the adhesive and press against the face stock (which is slightly compressible), but do not cut through the facestock.

[00190] d. The web may or may not be inverted by another series of idler rollers. The web then passes through an additional die station to make the die cuts in the face material.

[00191] e. The web then may pass though a matrix removal area, wherein a portion of the face material is removed from the web by pulling a portion of the face material away from the web and around one or more rollers or fixed bars, after which it is either wound up into a roll or transported by vacuum into a waste container. Alternatively, the matrix can be removed immediately at the face material die station. The die cut sections of liner that are directly and wholly underneath the facestock material that is removed will be adhesively bonded to the face material and will also be removed with the face material, leaving a hole through the liner in that location.

[00192] f. The web then goes into a cutoff or "sheeter" station that has a die and anvil. The die contains a single continuous cross machine blade (usually the blade is removable and can be easily replaced) which contacts the anvil roll on each revolution, and thereby cuts the web into individual sheets.

[00193] g. The sheets then are transported by belts and pulleys away from the sheeter station and are stacked either by allowing them to fall one upon another in a continuous stream or by feeding them into wheels ("starwheels") that have spiral shaped cuts that receive and decelerate the sheets, which turn as the sheets are received. In the latter design, there are fixed posts between the starwheels, whereby the sheets hit the posts and are stripped out of the starwheels and drop into a vertical stack. This vertical stack is then ejected on a periodic basis and fed onto secondary conveyor

belts, where they are either removed for hand packing or fed into a secondary packaging machine, which places the product into packets or boxes.

[00194] Other manufacturing processes as would be apparent to those skilled in the art from this disclosure are also within the scope of the present invention and included herein. For example, the ordering of the steps or stations can be changed, such as the facestock cutting station being before the liner cutting station. Or stations, such as the printing station, eliminated. The process can be varied as would be apparent to those skilled in the art from other manufacturing disclosures in this document.

[00195] The user designs on his personal computer the indicia to be printed on the label portions of the labels, as previously described. The label sheet constructions are then fed into a printer or copier, and the desired indicia 624 printed on the labels. Alternatively, the label sheet constructions can be separated along their weakened center line to divide the sheets into two portions.

[00196] After the printing, the user grasps the end of the tab using the crescent shaped hole and the patch and peels the label and two tabs off of the sheet, as shown in FIG. 14. Holding the two tabs and patches in his right and left hands, the label is moved into position on the CD label applicator device (as previously described) or directly on the CD. With the printed label subsequently adhesively adhered to the non-data side of the CD, the tabs are torn off along the perforated edges.

[00197] The spine labels on the label sheet construction can also be printed by the user by his printer with custom indicia 624. The printed spine label is then peeled off of the underlying liner. The user applies the removed label with indicia 624 to the spine of a jewel case.

[00198] Thus, from the foregoing detailed description, it will be evident that there are a number of changes, adaptations and modifications of the present invention which come within the province of those skilled in the art. The scope of the invention includes any combination of the elements from the different species, variations or embodiments disclosed herein. For example, the applicator can instead of the above-described post

assembly use a plunger arrangement. However, it is intended that all such variations not departing from the spirit of the invention be considered as within the scope thereof.